

# Gap analysis between provisional diagnosis and final diagnosis in government and private teaching hospitals: A record-linked comparative study

Sudeshna Chatterjee<sup>1</sup>, Krishnangshu Ray<sup>2</sup>, Anup Kumar Das<sup>3</sup>

<sup>1</sup>Deputy Registrar Academic, Netaji Subhas Open University, <sup>2</sup>Director, Institute of Health and Family Welfare, <sup>3</sup>Department of Pharmacology, R. G. Kar Medical College, Kolkata, West Bengal, India

## ABSTRACT

**Aims:** 1. To identify the extent of clinical gaps at the context of knowledge, practice and systems. 2. To formulate necessary intervention measures towards bridging the gaps. **Settings and Design:** Comparative, cross-sectional and non-interventional study. **Methods and Material:** It is retrospective, record-based study conducted upon inpatients ( $n = 200$ ) of major disciplines of two teaching hospitals. Major outcome variables were to observe the matching and un-matching of final and provisional diagnosis by using ICD-10 criteria. **Statistical Analysis Used:** Comparative analysis of specific and selective gaps were estimated in terms of percentage (%). **Results:** Pilot observation showed the existence of gaps between provisional and final diagnosis in both private and government institution. Both knowledge and skill gaps were evident in caregivers and gap in documentation was existent in medical records. **Conclusions:** The pilot data is may be an eye-opener to public and private governance systems for understanding and revising the process service planning and service delivery. Necessary intervention measures may be contemplated towards enhancing diagnostic skill of doctors for quality hospital care.

**Keywords:** Clinical audit, gap analysis, medical audit

## Introduction

A diagnosis is meant to provide a reliable description of the clinical condition, one that provides means of communication between patient and the clinician as well as interested parties. One of the central debates in hospital practice points to a diagnostic approach to the patients. Provisional diagnosis (PD) is the first considered diagnosis which initiates the first phase of management, whereas confirmatory or final diagnosis (FD) is the chronological organization and critical evaluation of information obtained from the history, physical examination, and investigations.<sup>[1]</sup> The FD usually identifies the diagnosis for the patient's primary complaints first, with subsidiary diagnosis of concurrent problems.<sup>[2]</sup> The goals of any health

sector depends on the success of technical application of all stakeholders as well as the managerial capacities of the administration. Task-related skill administration are always assessed against the strategic planning of the health-care delivery system of any health set up.<sup>[3]</sup>

The key constraint to achieve optional health outcomes in the developing countries observed to have been due to lack of health management capacity.<sup>[4,5]</sup> This culminates to dissatisfaction and disaffection from the clients on the one hand and escalation of treatment costs on the other hand.<sup>[6]</sup> Institute of Medicine, Washington, DC has drafted a new health system for 21<sup>st</sup> century where the gap analysis is an important indicator of clinical performance based on the evidence-based practice of medicine. The said indicator is measured against the standard benchmarks during accreditation as well as quality care practices.<sup>[7]</sup>

**Address for correspondence:** Ms. Sudeshna Chatterjee, Netaji Subhas Open University, DD-26, Sector-1, Salt Lake City, Kolkata - 700 064, West Bengal, India.  
E-mail: sudeshna700040@gmail.com

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This study attempted to identify the clinical gaps in terms of diagnosis mentioned by the attending doctors representing both government and private sector teaching hospitals. It also compared the extent of gaps in between those hospitals. The researchers had designed and analyzed the nature of gaps into three categories such as (a) knowledge gap indicative of educational back up and experiences of the treating doctors (b) practice gap signifying the noncompliance of standard diagnostic criteria, and (c) system gap reflecting the statutory lapses by the hospital authorities in the documentation of medical records.

Specific lacunae related to those gaps either on the part of the clinicians or the hospital authority were observed against the prevailing health systems. Varieties of gaps were observed in three designated major departments (Internal Medicine, General Surgery, and Obstetrics and Gynecology) of both the institutions followed by comparing those data in between the institutions. The outcome of the study was able to furnish necessary recommendations or interventional measures to minimize the gaps.

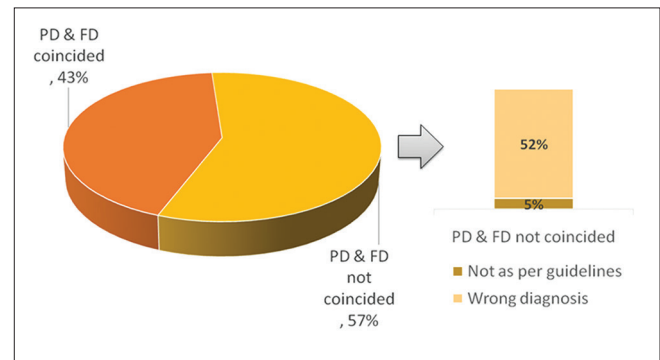
## Materials and Methods

The present comparative, cross-sectional, and noninterventional study identified the relevant clinical audit parameters using the standard protocols. Bed head tickets (BHTs) of three major disciplines (Internal Medicine, General Surgery, and Obstetrics and Gynecology) from the Medical Record Department of R. G. Kar Medical College (government) and KPC Medical College (private) were collected as samples ( $n = 100$  each per hospital). Major outcome variables were to observe the machining and un-matching of FD with PD using the ICD-10 criteria of disease classification (WHO, 2011). Incomplete BHTs and BHTs showing discharge on risk bonds were not incorporated the study. Specific gaps such as “Knowledge” and “Practice” indicated the lacunae from the part of the caregivers (doctors), whereas “System” gap indicated lapses on the part of respective hospital authorities. The total period of sampling, compilation, and analysis was 1 year. The study protocol was approved by the local Institutional Ethics Committee.

## Results

All data collected together from both public and private hospitals elicited definite diagnostic gap between PD and FD. Both diagnoses did not match in 57% samples of R. G. Kar Medical College, out of which 52% did not comply the diagnosis with standard guideline and rest 5% elicited wrong diagnosis. In KPC Medical College, 42% of samples unmatched out of which 25% remained noncompliant and 17% furnished wrong diagnosis [Figures 1 and 2] While calculating specific of types of gaps altogether, it was evident that “Knowledge” gaps were higher in KPC Medical College than that of R. G. Kar Medical College (27% vs. 11%). Both “Practice” and

“System” gaps remained higher in R. G. Kar Medical College when compared to KPC Medical College (39% vs. 16% and 10% vs. 1%, respectively) [Table 1]. On department wise analysis, it was evident that “Knowledge” gap in internal medicine was higher in KPC Medical College than R. G. Kar Medical College (38% vs. 14%). In Surgery Department of KPC Medical College, the same gap was higher (19% vs. 12%), whereas in Obstetrics and Gynecology the said gap was nil in R. G. Kar Medical College, which was higher (7%) in case of KPC Medical College [Tables 2 and 3]. In R. G. Kar Medical College, the practice gap was significantly higher in medicine (51% vs. 10%) as well as in Obstetrics and Gynecology (64% vs. 0%). In surgery, the gaps remained more or less same [Tables 2 and 3]. “System” gap was nil in the Medicine Department of KPC Medical College than R. G. Kar Medical College (16%). In Surgery Department, the gap in both the institutions remained same, whereas in Obstetrics



**Figure 1:** R. G. Kar Medical College

**Table 1: Comparative analysis of specific gap components**

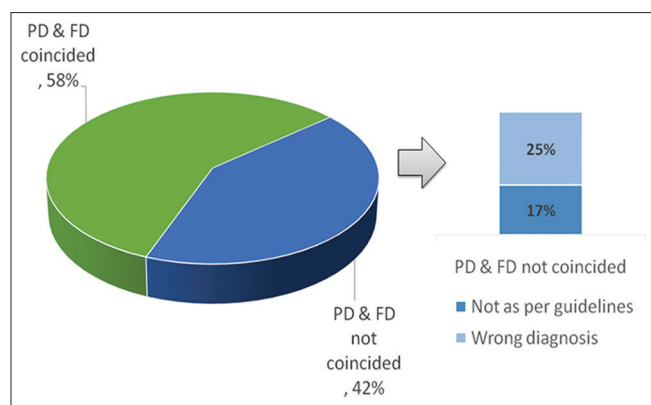
Gap component	R. G. Kar Medical College (%)	KPC Medical College (%)
Knowledge	11.0	27.0
Practice	39.0	16.0
System	10.0	1.0

**Table 2: Selective gaps in various departments of R. G. Kar Medical College**

Name of department	Knowledge (%)	Practice (%)	System (%)
Medicine (n=37)	14.0	51.0	16.0
Surgery (n=49)	12.0	36.7	4.0
Gynecology and Obstetrics (n=14)	0.0	64.0	14.0

**Table 3: Selective gaps in various departments of KPC Medical College**

Name of department	Knowledge (%)	Practice (%)	System (%)
Medicine (n=50)	38.0	10.0	0.0
Surgery (n=36)	19.4	30.0	2.7
Gynecology and Obstetrics (n=14)	7.0	0.0	0.0



**Figure 2: KPC Medical College**

and Gynecology, the gap was nil in KPC Medical College when compared to that of R. G. Kar Medical College (14%).

## Discussion

Gaps between provisional and FD irrespective of specific disease situations are another indicator of hospital performances.<sup>[1]</sup> History taking and clinical examinations facilitate accurate diagnosis which is a great concern for the hospital administrators. Matching of PD with discharge diagnosis can lead to higher patient satisfaction along with lesser burden of health resources.<sup>[1]</sup> Efficiency, effectiveness, and equity of their distribution across the population are three important measurement indicators for hospital performances.<sup>[8]</sup> Workflow in hospital associated with approved and evidence-based guidelines are the benchmarks of measuring the process.<sup>[9]</sup>

Several samples obtained from both public and private teaching hospitals did not match in accordance with the ICD-10 criteria.<sup>[10]</sup> Such gaps are found to have been higher in public sector than that of private one (57% vs. 42%). Since we did not include the referral diagnosis, such gaps could be the outcomes of diagnostic lapses occurred solely in the respective institutions. “Knowledge” gaps in respect to the doctors remained higher in the private sector which is the possible indication of poor academic pursuits of the doctors working over there. The extent of gap was highest among the doctors representing the Internal Medicine Department. Conversely, both “Practice” and “System” gaps remained higher in the public sector than that of private one (39% vs. 16% and 10% vs. 1%, respectively). This could be explained in terms of poor task related skill against the strategic planning of that particular organization.<sup>[11]</sup> Relatively, higher “Practice” and “System” gaps in Internal Medicine Department of the public sector could be explained in terms of huge patient load and inadequate supervision and monitoring by the local authority.<sup>[12]</sup> Increasing “System” gaps in both the sectors is alarming for which medical record keeping departments and other associated services could be strengthened.

The present pilot study suffered from paucity of sample size. Other busy departments such as pediatrics, dermatology, and

psychiatry may be other choices. In depth observation on the individual precision or accuracy of doctors and individual influence of diagnostic investigation has not been analyzed. Respective authorities are recommended for organizing intervention measures toward improvising the diagnostic skill of the clinicians. Training on knowledge and practices on good history taking, clinical examination, and rational use of investigation tools may be contemplated. It has been proved that maximum diagnostic accuracy with minimum diagnostic investigations provides greater cost-benefit to the health sectors.<sup>[1]</sup> Implementation of health management training is known to have been augmented the health delivery skills and competencies in many developing countries.<sup>[13,14]</sup>

## Conclusion

Matching of PD with FD with greater accuracy and lesser number of investigations can lead to greater patient satisfaction and lesser burden on health resources. Our pilot data may be an eye opener to both public and private governance systems for understanding and revising the process of service planning and service delivery. Necessary intervention measures may be undertaken toward improvisation of diagnostic skill of the doctors for quality hospital services.

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## Conflicts of interest

There are no conflicts of interest.

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